

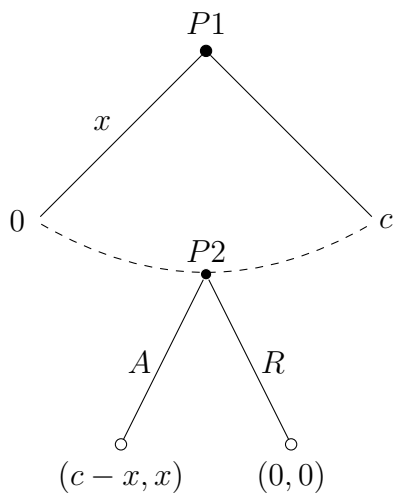
MW24.2 Experimental Economics (SS2023)

Ultimatum Bargaining

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Ultimatum Game

- * Two players are splitting a pie of size c . The first player (also, the proposer or sender) *offers* the share x , s.t. $0 \leq x \leq c$, to the second player (also, the responder or receiver) who in turn, can either *accept* (A) or *reject* (R) the offer. The payoffs are $(c - x, x)$ if the offer is accepted and $(0, 0)$ if the offer is rejected [Güth et al., 1982].



- * SPNE: $\{x^* = \epsilon; A\}$ where ϵ is the lowest (positive) amount possible

- * usual experimental findings:

- average offer $\sim 40\%$
- modal offer $\sim 40 - 50\%$
- few offers of $\leq 20\%$
($\sim 50\%$ rejected)

exa) Buyer with willingness-to-pay of 15 and seller with a production cost of 5 essentially, splitting the surplus of 10 between the two of them.

- * the game represents the *final* stage of a bargaining process

\Rightarrow is the SPNE “fair”?

\Rightarrow what is a “fair” offer?

Güth et al. [1982]

- * ultimatum game with various pie sizes and subject experience levels
- ⇒ virtually all offers above one DM, average offer $\sim 35\%$
- ⇒ few rejections (albeit more by experienced subjects) [Tables 4–5]
- * consistency check [7 DM only]:
 - submit the offer/demand both as the proposer and recipient
 - ⇒ most exhibit more modest demands by offering 45% on average [Table 7]
 - ⇒ 15/37 consistent profiles; 5/37 conflicting profiles
 - ⇒ 7/15 consistent profiles suggest equal splits

Related Games

1. Dictator game [Forsythe et al., 1994]

- ~ ultimatum sans the recipient move [technically, individual decision problem]
- * if subjects are motivated by *fairness*, the distributions of offers/transfers should be the same between the two games
- ⇒ transfers are positive but *lower* in the dictator game
- ⇒ “fairness” is more pronounced when it’s free [Fig. 1]
- ** usually, it is found that $\sim 60\%$ subjects transfer $\sim 20\%$ of their endowment

2. Two-stage bargaining [Goeree and Holt, 2000]

- ~ ultimatum game played *twice* with the players *switching the roles*
- ~ usually, the pie shrinks from X to Y
- ~ SPNE *outcome* is $(X - Y; Y; \text{game over in stage 1})$
- * compare SPNE and *egalitarian* predictions across seven treatments by varying the pie size in the second stage and fixed subject payments (endowments) [Table 1]
- ⇒ first stage offers turn out to be *negatively* related to the pie size in the second stage (also note the standard deviation) [Fig. 1]
- ⇒ 75% of initial offers accepted (as they tended to equalize the earnings)
- ⇒ data are roughly consistent with a model where people care about relative earnings

Ultimatum Bargaining

- * tension between self-centered and other-regarding concerns (“fairness”)
 - * potential explanation of subject behavior:
 - altruism
 - reciprocity
 - inequality aversion
 - difficulty understanding the game (e.g., demand effects, focal points)
- } other-regarding concerns
- ⇒ rather susceptible to procedural details

Demand effect ~ Bardsley [2008]¹

- ⇒ 22/33 subjects give in the dictator game
- ⇒ 15/32 subjects give in the “taking” game

Demand effect ~ Cherry et al. [2002]

- * giving in dictator games could be due to the subjects dealing with “house money” and the experimenter watching
 - * 3 main treatments: baseline, earned, and double blind earned endowment
- ⇒ transfers go down drastically [Fig. 1–2]

Focal points ~ Binmore et al. [1985]

“...because they don’t know how to play the game”

- * two-stage bargaining; $c_1 = 100$ and $c_2 = 25$
 - * Game A recipients play as proposers in Game B
- ⇒ modal opening offers of ~50% (Game A) and ~25% (Game B) [Fig. 1]
- ⇒ recipients that saw low offers in Game A send low offers as proposers in Game B [Table 1] → it’s not about fairness!

- (!) the original instructions read²:
“...You will be doing us a favour if you simply maximized your winnings”

¹Nicholas Bardsley. Dictator game giving: altruism or artefact? *Experimental Economics*, 11 (2):122–133, 2008

Also, see the lecture on the experimenter demand effect.

²Again, see the lecture on the experimenter demand effect.

Suggested Literature

- Charles A Holt. *Markets, games, & strategic behavior*. Boston Pearson Addison Wesley, 2007 [Chapter 23]
- Werner Güth, Rolf Schmittberger, and Bernd Schwarze. An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior & Organization*, 3(4):367 – 388, 1982 [‘easy games’ only]
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- Todd L. Cherry, Peter Frykblom, and Jason F. Shogren. Hardnose the dictator. *American Economic Review*, 92(4):1218–1221, September 2002
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- * Nagore Iriberry and Pedro Rey-Biel. Elicited beliefs and social information in modified dictator games: What do dictators believe other dictators do? *Quantitative Economics*, 4(3):515–547, 2013